REMARKS

1. **Status of Claims**

Claims 11-24 and 26-33 are pending in the application. Claims 1-10 and 25 have been canceled. Claims 32 and 33 are added as a new claim. Claims 11, 16, 18, 21-23, 26, 28, 30 and 31 are amended. Support for the amendment and new claims 32 and 33 can be found throughout the specification, for example, on page 4 lines 15-18, on page 11 line 20 to page 13 line 4 and Figures 9-11. No new matter has been introduced.

2. **Election/Restriction**

At page 2 lines 3-8 in the office action, the examiner stated that the restriction requirement set forth in the previous office action is withdrawn.

The applicants submit that this paragraph requires no further comment.

3. **Objections to the Drawings**

At page 2 lines 10-18 in the office action, the examiner objected to the drawings. In support of the objections the examiner stated that:

> The drawings are objected under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the subject matter that the recited B in the recited formula $ScBMgO_4$ or $ScBBeO_4$ is boron, as recited in claims 16 and 32, and/or that the insulating layer formed by using a material identical to that for the substrate for the basic structure as recited in claims 20 and 27, must be shown or the feature(s) cancelled from the claims(s). [Office action mailed June 12, 2003, page 2 lines 10-15.]

The applicants submit that the objection is improper because it does not refer to structural features, and it is the structural features that must be shown on the drawings. "Any structural detail that is of sufficient importance to be described should be shown in the drawings." Ex parte Good, 1911 C.D. 43, 164 O.G. 739 (Comm'r Pat. 1911). In this regard, the recited "B" in the recitations of the formulas "$ScBMgO_4$" and "$ScBBeO_4$" is a chemical element and is not a structural feature of the claimed invention. Therefore, showing of this chemical element in the drawing is neither required nor feasible.

Therefore, the objection to the drawing as not showing features claimed in claims 31 and 16 is improper and should, therefore, be withdrawn.

Claims 20 and 27 recite an insulating layer formed by using "a material identical to that for said substrate for a basic structure." The recited limitation defines a composition of material forming the insulating layer. The type of material is not a structural limitation. Therefore, it needs not and cannot be shown in the drawings. Therefore, the objection to the drawings as not showing features recited in claims 20 and 27 is improper and, therefore, should be withdrawn.

4. **Objections to the Specification**

At page 3 lines 1-5 in the office action, the examiner objected to the specification as containing a minor typographical error. In response, the applicants amend the specification to correct the noted error.

5. **Claim Objections**

At page 3 lines 5-12 in the office action, the examiner objected to the claims as containing minor informalities. In response, the applicants amend claims 11, 21, 28, and 31 to correct the noted informalities.

6. **Rejections of Claims 16 and 20-31 Under 35 USC 112 for Lack of Written Description**

At page 3 line 13 through page 4 last line in the office action, the examiner rejected claims 16 and 20-31 under 35 USC 112, first paragraph for allegedly containing subject matter which was not described in the specification in such a way as to reasonably convey to one of ordinary skill in the art that the inventors had possession of the claimed invention. In support of these rejections, the examiner stated that:

> Claims 31 and 16 each recite the subject matter that the recited B in the recited formula $ScBMgO_4$ or $ScBBeO_4$ is boron, but the original specification and drawings lack an adequate description for it, especially the crystalline structure and/or lattice parameters for it.
>
> In addition, claims 20 and 27 each recite the subject matter of an insulating layer formed by using a material identical to that for te substrate for a basic structure, but the original specification and drawings lack an adequate description for it, especially its position and functionality.
>
> Furthermore, claims 21, 22, 28 and 29 recite the subject matter that a light emission layer and/or a second semiconductor layer have/has a composition or a structure identical to that of the semiconductor layer as base. However, according to the original specification and drawings, particularly see Fig. 14, the light emission layer (41) and the second semiconductor layer

(42) each have a different composition (different doping) and a different structure from that of the semiconductor layer (43) as a base.

And, the original specification and drawings also lack an adequate description for a light emitting device having a nitride semiconductor base layer with a ZnO buffer layer as recited in claim 25, or with a ZnO light emitting active layer as recited and/or implied in claims 28-29. The original specification and drawings also lack an adequate description for a filter formed of a GaN layer, as recited in claim 30. [Office action mailed June 12, 2003, page 4 lines 3-22.]

In response to the examiner's concerns, please note that lattice parameters and crystal structure specification are not necessary to adequately define the recited compounds. In response to the issues relating to boron in claims 16 and 31, the applicants note that the recited formulae conventionally represent chemical compounds, and that the symbol "B" would have been readily recognized by an ordinary artisan as "boron" in these formulae. Moreover, the applicants delete "B is boron", i.e., the definition of B, from claims 16 and 31, as redundant.

In response to the rejections of claims 20 and 27, the applicants note that these claims recite claim language that appears ipsus verbis in the original claim 7. Because the original claims constitute a part of the original specification, the subject matter claimed in claims 20 and 27 is supported by the original specification.

In response to the rejection of claim 25, the applicants assert that limitations now recited in claim 25 correspond to the text of original claim 6, which explicitly recited a nitride semiconductor and ZnO buffer layer. Since the text of the original claims constitute a part of the original specification, the subject matter recited in claim 25 is adequately supported by the original specification.

In response to the rejection of claim 30, the applicants assert that claim 30 did not recite "a filter formed of a GaN layer;" instead it recited "a filter characteristic is provided." Claim 30 is amended, by deleting reference to the filter characteristic. The language of both claims 16 and 30 is supported, for example, by the original text of claims 4 and 10.

In response to the rejections of claims 21, 22, 28, and 29, the applicants assert that the subject matter claimed in claims 21 and 28 was presented verbatim in original claim 8, and that the subject matter claimed in claims 22 and 29 was presented verbatim in the text of original claim 9. Since the original claims constitute a part of the original specification, the subject matter claimed in claims 21, 22, 28, and 29 is adequately supported by the original specification. In the rejections of claims 21, 22, 28 and 29, the examiner refers only to Fig.

14 as not supporting these claims. That analysis is legally improper because any part of the disclosure can support the claimed subject matter, including the original claims. In considering support for the claimed invention, the applicant "is clearly entitled to have the whole of his disclosure considered." In re Anderson, 176 USPQ 331, 333 (CCPA 1973). Generally speaking, all the rejections discussed above imply that the support for any subject matter claimed in the claims has to be found in examples. This is legally incorrect. As a matter of law, claims are properly supported by any part of the specification.

Thus, the subject matter defined by claim 16 and 20-31 is supported by the original specification, for example, by originally presented claims. Therefore, the rejections of claims 16 and 20-31 as containing new matter are improper and should be withdrawn.

7. **Rejections of Claims 18, 19, 23-26, 29 and 30 Under 35 USC 112 as Indefinite**

At page 5 lines 1-14 in the office action, the examiner rejected claims 18, 19, 23-26, 29 and 30 under 35 USC 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicants regard as their invention. In support of the rejections of claims as indefinite, the examiner stated that:

> Claims 18, 19, 23, 25, 26 and 30 recite the subject matter of an insulating semiconductor; however, an insulating material and a semiconductor material are two different types of materials, and a material can not be both insulative and semiconductive simultaneously. In the instant case, ZnO can either be an insulator (if extremely purified) or a semiconductor (normally it always tends to be), but can not be both of them at the same time.
>
> Moreover, claims 24-25 and 29 recite and/or imply that the semiconductor layer is formed of ZnO, but it is already specified in claim 16 that it is formed of a nitride. [Office action mailed June 12, 2003, page 5 lines 4-14.]

In response to the rejections of claims 18, 19, 23, 25, 26, and 30, the applicants amend claims 18, 23 and 30 to delete the language objected to by the examiner and cancel claim 25. Therefore, the rejections of claims 18, 19, 23, 25, 26, and 30 are moot and should be withdrawn.

In response to the rejections of claims 24-25 and 29, the applicants cancel claim 25. Please note that claim 29 does not recite limitations directed to the semiconductor layer, and therefore should not be rejected.

Therefore, rejections of claims 18, 19, 23-26, 29 and 30 as being indefinite are now improper and should therefore be withdrawn.

8. **Rejections of Claims 11-16, 20, 27, 28, and 31 Under 35 USC 102(e) as Anticipated by Vaudo et al.**

At page 5 line 15 through page 6 line 11 in the office action, the examiner rejected claims 11-16, 20, 27, 28, and 31 under 35 USC 102 based Vaudo et al. ("Vaudo"; US 6,156,581). In support of these rejections, the examiner stated that:

> Claims 31, 11-16, 20, 27 and 28, insofar as being in compliance with 35 U.S.C. 112 and as being best understood in view of the claim objections set forth above, are rejected under 35 U.S.C. 102(e) as being anticipated by Vaudo et al. ("Vaudo"; US 6,156,581).
>
> Vaudo discloses a semiconductor device (See Fig. 3, also see col. 6, lines 18-49, comprising: a substrate (102; $ScAlMgO_4$); a semiconductor layer (either layer 104 of GaN or ZnO (see col 6, lines 40-49)); and a light emission layer (108; InGaN) and a second semiconductor layer (110; GaN) both having a lattice structure substantially identical to the base semiconductor layer (104).
>
> Regarding claims 20 and 27, the upper portion of the $ScAlMgO_4$ substrate can be regarded as the recited insulating layer. [Office action mailed June 12, 2003 page 6 lines 1-11.]

In response, the applicants assert that Vaudo does not disclose the combination of the semiconductor layer on the substrate defined by claim 31. The referenced portions of Vaudo, i.e. column 6 lines 18-49, disclose a generic list of more than a dozen materials that can be used as a substrate (lines 18-29). In column 6 lines 40-49, Vaudo discloses another list of several materials that can be used as an intermediate layer. Layer 104 in figure 3, referred to by the examiner, is a GaN base layer. Layer 102 is not specified as any particular material. See column 13 lines 36-52. In fact, all of the examples provided in Vaudo disclose growing a GaN layer on a sapphire substrate. None of the examples disclose growing GaN on a $ScAlMgO_4$ substrate. There is no teaching in Vaudo of the combination of a $ScAlMgO_4$ substrate with either a ZnO layer or a GaN semiconductor layer. Therefore, Vaudo does not disclose GaN grown on $ScAlMgO_4$ as claimed in claim 31. Claims 11-16 depend from claim 31. Therefore, Vaudo does not anticipate claims 11-16 or 31.

Furthermore, Vaudo does not disclose a semiconductor device is obtained by forming the semiconductor layer on the substrate at the temperatures from 350 ^{o}C to 600 ^{o}C. Vaudo discloses forming the semiconductor layer at the temperatures in excess of 900 ^{o}C , and preferably 1000 ^{o}C to 1100 ^{o}C for GaN semiconductor layers. See Vaudo column 12 lines 14-25. Figure 11 of the present specification shows that nitrogen concentration in ZnO layer increases exponentially with decreasing growth temperature. This result are also supported by "Donor-acceptor pair luminescence in nitrogen-doped ZnO films grown on lattice-

matched ScAl Mg O_4 (0001) substrates" by Tamura et al. attached herewith as attachment 2[1]. See page 266, right hand column, first full paragraph. Thus, the semiconductor device defined by claim 31 has a nitrogen concentration that is different from the nitrogen concentration of the semiconductor devices disclosed in Vaudo. For this additional reason, Vaudo does not anticipate claim 31.

Furthermore, the examiner's interpretation of the upper portion of the $ScAlMgO_4$ substrate of Vaudo as the insulating layer recited in claims 20 and 27 is incorrect. By definition, an insulator is "a device having high electrical resistance and used for supporting or separating conductors to prevent undesired flow of current from them to other objects." See the definition of insulator" in the McGraw-Hill Dictionary of Scientific and Technical Terms attached herewith as attachment 1[2]. By definitions, an insulating layer has to have electrical characteristics different from the material it insulates. Therefore, the insulating layer and the layer it insulates cannot be made the same material. Thus, the examiner's construction of claims 20 and 27, wherein the examiner equates the insulating layer to the upper portion of the substrate, is incorrect. Thus, Vaudo does not disclose the additional limitation of the insulating layer defined by claims 20 and 27.

For all of the foregoing reasons, the rejections of claims 11-16, 20, 27, 28, and 31 as anticipated by Vaudo are improper and, therefore, should be withdrawn.

9. **Rejections of Claims 16, 24-29, and 31 as Anticipated by Brandle et al.**

At page 6 line 15 through page 7 line 2 in the office action, the examiner rejected claims 16, 24-29, and 31 under 35 USC 102 based upon Brandle et al. ("Brandle"; US 5,530,267). In support of these rejections, the examiner stated that:

> Brandle discloses a semiconductor device (See Fig. 1, also see col. 4, lines 1-34, and col. 6, lines 31-37)), comprising: a substrate (12; $ScAlMgO_4$); a semiconductor layer (14; GaN); a buffer layer (13, GaN); and a light emission layer (16; InGaN) and a second semiconductor layer (18; GaN) both having a lattice structure substantially identical to the base semiconductor layer (14).

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[1] A copy of Tamura et al., Donor-acceptor pair luminescence in nitrogen-doped ZnO films grown on lattice-matched ScAl Mg O_4 (0001) substrates", Solid State Communications 127, (2003) 265-269 is attachment 2.

[2] A copy of the cover page, copyright page and page 1026 of The Dictionary of Scientific and Techical Terms containing the definition for "insulator" is attachment 1.

Regarding claim 27, the upper portion of the $ScAlMgO_4$ substrate can be regarded as the recited insulating layer. [Office action mailed June 12, 2003; page 6 line 16 through page 7 line 2.]

In response, the applicants assert that Brandle does not anticipate the semiconductor device defined by claims 16, 24-29, and 31. The claimed device is obtained by forming a semiconductor layer on a substrate at temperatures from 350 ^{o}C to 600 ^{o}C. As discussed above, depositing the semiconductor layer at such low temperatures results in a higher nitrogen concentration than in the materials disclosed by Brandle. Brandle does not disclose forming the semiconductor layer at temperatures from 350 ^{o}C to 600 ^{o}C. Moreover, given the fact that the other art relied upon by the examiner teaches forming layers at temperatures much greater than 600 ^{o}C, clearly it would not be inherent in Brandle to form layers at temperatures of below 600 ^{o}C. Thus, Brandle does not disclose a structure having the nitrogen concentration defined inherently by claims16, 24-29, and 31.

Furthermore, for the reasons discussed above for Vaudo, the upper portion of the $ScAlMgO_4$ substrate of Brandle cannot reasonably be regarded as the insulating layer defined by claim 27.

Therefore, the rejections of claims 16, 24-29, and 31 as anticipated by Brandle are improper and should, therefore, be withdrawn.

10. **Rejections of Claims 21, 22 and 29 Under 35 USC 103(a) as Obvious over Kawasaki in View of Vaudo et al.**

At page 7 line 3 through page 8 line 4 in the office action, the examiner rejected claims 21, 22 and 29 under 35 USC 103 based upon Kawasaki '555 (EP 0863 555 A2) in view of Vaudo et al. ("Vaudo"; US 6,156,581). In support of the rejections, the examiner stated that:

> Claims 21, 22 and 29, insofar as being incompliance with 35 U.S.C. 112 and as being best understood in view of the claim objections set forth above, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawasaki'555 (EP 0 863 555 A2) in view of Vaudo et al. ("Vaudo"; US 6,156,581).
>
> Kawasaki'555 discloses a semiconductor light emitting device (see Fig. 32), comprising: a substrate (11); a semiconductor layer (13; and Mg-doped ZnO, see page 7, line 25, and page 8, lines 29-45); a light emission layer (14; ZnO/MgZnO MQW); and a second semiconductor layer (15; an Mg-doped ZnO).
>
> Although Kawasaki'555 does not expressly disclose that the substrate can also be $ScAlMgO_4$, one of ordinary skill in the art would readily recognize

> that ZnO and $ScAlMgO_4$ have extremely matching lattices (see Table 1 in Kawasaki'555 and see col. 4, lines 33, in Brandle (US 5,530,267)), which normally would result in a high quality in the deposited ZnO layer, and that a ZnO layer can be readily deposited on a $ScAlMgO_4$ substrate, as evidenced in Vaudo (see col. 6, lines 18-49).
>
> Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make a semiconductor device of Kawasaki'555 with the substrate being formed of $ScAlMgO_4$, as taught in Vaudo, so that a semiconductor device with high quality in the semiconductor base layer would be obtained. [Office action mailed June 12, 2003 page 7 line 11 through page 8 line 4.]

In response, applicants assert that the teachings of the cited references do not suggest the light emission devices defined by claims 21, 22 and 29. The examiner admits that Kawasaki '555 does not disclose substrates formed from the claimed group of materials. All of the examples of Kawasaki '555 are directed to the sapphire substrate, including the example relied upon by the examiner (figure 32). The examiner asserts that "one of ordinary skill in the art would readily recognize that ZnO and $ScAlMgO_4$ have extremely matching lattices [sic; similar lattice constants] (see Table 1 in Kawasaki '555 and see col. 4, lines 33, in Brandle (US 5,530,267)), which normally would result in a high quality in the deposited ZnO layer." The examiner cites column 4 lines 33 et seq. of Brandle. Column 4 lines 33 et seq. in Brandle disclose only lattice mismatch of $ScAlMgO_4$ and GaN. Line 31 in column 4 discloses a lattice constant for $ScAlMgO_4$ which is within 1% of the lattice constant for ZnO disclosed in Table 1 of Kawasaki. The examiner relies upon similarity in lattice constants as the basis for legal motivation to combine. However, similarity of lattice constants of substrate and deposit material is only one of many parameters necessary to achieve high quality of a deposited layer, and only one parameter necessary to achieve a useful device. It is generally well known that lattice matching and crystalline quality of a deposited layer depend upon a variety of factors including deposition temperature, rate of deposition, and atmospheric conditions in the deposition chamber. It is also well known that fabricability and ultimately device performance also relate via the quality of the deposited layers upon deposition parameters. Given that it is the ultimate utility defined by device performance, the examiner has not shown that there would be a reasonable expectation of producing a successful device. Therefore, the combined teachings of Kawasaki and Brandle, at best, make it obvious to experiment with growth device fabrication, and test device utility, rather than provide a reasonable expectation of producing a useful semiconductor device, which is

that standard for obviousness. For this reason, the rejections of claims 21, 22 and 29 are improper and should, therefore, be withdrawn.

Furthermore, the examiner's statement "that a ZnO layer can be readily deposited on a $ScAlMgO_4$ substrate, as evidenced in Vaudo (see col. 6, lines 18-49)" is not supported by the referenced portions of Vaudo. All Vaudo discloses in the referenced portion, i.e., column 6 lines 18-49, is a list of more than a dozen materials that can be used as a substrate and another list of several materials that can be used as an intermediate layer. While $ScAlMgO_4$ is listed as one of many useful substrates and ZnO is listed as one of possible intermediate layers, there is no teaching of the claimed combination of $ScAlMgO_4$ substrate with ZnO layer on it or that the "ZnO layer can be readily deposited on $ScAlMgO_4$ substrate," as alleged by the examiner. Therefore, the prior art teachings relied upon by the examiner do not provide an expectation that "a semiconductor device with high quality in the semiconductor base layer would be obtained," as alleged by the examiner. For those additional reasons, the rejections of claims 21, 22 and 29 are improper and should, therefore, be withdrawn.

Furthermore, the proposed combination of Kawasaki in view of Vaudo does not result in a structure with the level of Nitrogen inherent to the devices defined by claims 21, 22, and 29 for the reasons presented above for claim 31. Since Claims 21, 22, and 29 ultimately depend from claim 31, the proposed combination is not subject matter defined by these claims. For this additional reason, the rejections of claims 21, 22, and 29 are improper and should be withdrawn.

Moreover, as demonstrated by the applicants, substitution of sapphire substrate with $ScAlMgO_4$ substrate in combination with a low temperature growth process results in semiconductor devices with unexpectedly high quality, in addition to at least the structural difference of additional nitrogen. These results are further supported by "Epitaxial growth of ZnO films on lattice-matched on $ScAlMgO_4$ (001) substrates" by Tamura et al. a copy of which is submitted herewith as attachment 3.[3] This article discusses that electrical and structural properties of films grown at low temperature are substantially the same as those of films grown at higher temperature, and it discloses that significantly higher concentration of nitrogen can be incorporated in the films grown at lower temperatures. The resulting device

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[3] A copy of Tamura et al. "Epitaxial growth of ZnO films on lattice-matched on $ScAlMgO_4$ (001) substrates" Journal of Crystal Growth, 215/215, (2000) 59-62 is attachment 3.

properties are superior to the devices properties obtained by depositing a semiconductor layer on a sapphire substrate, as evidenced from figures 9-11 of the present specification.

In view of the foregoing reasons, the rejections of claims 21, 22 and 29 as obvious over Kawasaki '555 in view of Vaudo et al. are improper and, therefore, should be withdrawn.

11. **Rejections of Claims 17-19, 23 and 30 Under 35 USC 103(a) as Obvious over Koike et al. in View of Vaudo et al.**

At page 8 line 5 through page 9 line 6 in the office action, the examiner rejected claims 17-19, 23 and 30 under 35 USC 103 based upon Koike et al. ("Koike"; Quasi-Microwave Band Longitudinally Coupled Surface Acoustic Wave Resonator Filters Using ZnO/Sapphire Substrate, JJP, V34, 1995, pp.2678-2682) in view of Vaudo et al. ("Vaudo"; US 6,156,581). In support of the rejections the examiner stated that:

> Claims 17-19, 23 and 30, insofar as being incompliance with 35 U.S.C. 112 and being best understood in view of the claim objections set forth above, are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike et al. ("Koike"; Quasi-Microwave Band Longitudinally Coupled Surface Acoustic Wave Resonator Filters Using ZnO/Sapphire Substrate, JJAP, V34, 1995, pp. 2678-2682; of record) in view of Vaudo et al. ("Vaudo"; US 6,156,581).
>
> Koike discloses a filter device (see Fig. 3), comprising: a ZnO layer; a substrate (Sapphire); and input and output electrodes.
>
> Although Koike does not expressly disclose that the substrate can also be $ScAlMgO_4$, one of ordinary skill in the art would readily recognize that ZnO and $ScAlMgO_4$ have extremely matching lattices (see Table 1 in Kawasaki'555 and see col. 4, lines 33, in Brandle (US 5,530,267)), which normally would result in a high quality in the deposited ZnO layer, and that a ZnO layer can be readily deposited on a $ScAlMgO_4$ substrate, as evidenced in Vaudo (see Col. 6, lines 18-49).
>
> Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to make the filter device of Koike with the substrate being formed of $ScAlMgO_4$, as taught in Vaudo, so that a filter device with high quality in the ZnO layer would be obtained.'
>
> Regarding claims 17-19, the lower portion of the ZnO layer Koike can be regarded as the buffer layer recited in claims 17 and 18, since the ZnO layer in the filter device of Koike would be naturally substantially insulative; otherwise the input and output electrodes therein would be substantially shortened. [Office action mailed June 12, 2003 page 8 line 5 through page 9 line 6.]

In response, the applicants submit that the substitution of a sapphire substrate disclosed in Kioke et al. with $ScAlMgO_4$ substrate proposed by the examiner is not suggested

based on the teachings of cited references, and specifically not supported by the teachings of Vaudo. (The applicant notes that the examiner previously relied on teachings of Kawasaki and Brandle for this substitution. Applicants repeat that Kawasaki and Brandle do not make it obvious to substitute sapphire substrates in semiconductor devices of Kawasaki with $ScAlMgO_4$ substrates.)

The teachings of Vaudo do not support the examiner's conclusion that "ZnO layer can be readily deposited on $ScAlMgO_4$ substrate." The teachings, therefore, also do not provide any expectation that by substitution of a sapphire substrate by a $ScAlMgO_4$ substrate will result in a filter device with high quality in the ZnO layer. Furthermore, as shown in this application, at pages 17 and 18 and in figures 9 and 11, the subject matter defined by all claims provide superior, and therefore unexpected properties. For all of these reasons, the rejections of 17-19, 23 and 30 are improper and therefore should be withdrawn.

The examiner asserts that the lower portion of the ZnO layer of Koike can be regarded as the buffer layer defined in claims 17 and 18. The applicant submits that this assertion is incorrect. By definition, a buffer is "an electric circuit or a component that prevents undesirable interaction between circuits or components." See attachment 1 from McGraw-Hill Dictionary of Scientific and Technical Terms which also contains the definition of "buffer". Thus, a buffer layer cannot be a portion of one of the layers, in this case the semiconductor layer, to prevent the interaction between itself and another layer. Furthermore, the claims recite that a buffer layer is "between said substrate and said semiconductor layer" and, therefore, the claimed buffer layer is not a part of one of these other layers. Thus, Koike does not disclose or suggest the buffer layer defined by claims 17 and 18. For this additional reason, the rejections of claims 17 and 18 are improper and should therefore be withdrawn.

Therefore, rejections of claims 17-19, 23, and 30 as being obvious over Koike in view of Vaudo should be withdrawn.

Should the examiner have any questions, he is urged to contact the undersigned at 703-415-0012 ext 24.

Respectfully Submitted,

11/11/03

Date

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